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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Maximillian Fleischer

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12/01/2008

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EXAMINER

SIEFKE, SAMUEL P

ART UNIT

PAPER NUMBER

1797

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/090,277	FLEISCHER ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	SAM P. SIEFKE	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11,12 and 14-15 is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-10 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/20/08, 2/22/08</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims **1** and **6** are rejected under 35 U.S.C. 102(b) as being anticipated by Leu "Evaluation of gas mixtures with different sensitive layers incorporated in hybrid FET structures" 1994.

Leu discloses a gas sensor that comprises a substrate having a source and drain areas located opposite a gate electrode having a space between the substrate containing the source and drain. The gate electrode can have an inorganic metal oxide layer applied thereon for detecting gaseous compounds (page 678-681).

Measurements were taken at 70 degrees Celsius. The Examiner states that the gas sensitive layer is structurally and functionally capable of performing as an alcohol detection layer. It is well known in the art that metal oxide layers such as those employed in Leu, i.e. tin oxide, vanadium oxide are used for alcohol detection layers.

Claims **1**, **4** and **5** are rejected under 35 U.S.C. 102(b) as being anticipated by Tsutsumi et al. (USPN 3,663,870).

Tsutsumi discloses a semiconductor device passivated with a rare earth oxide layer. The semiconductor device comprises a gas sensitive field effect transistor that

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comprises a substrate (fig. 6 ref. 71; col. 1, lines 50-70) having a source (72) and a drain (73) areas and at least one gate electrode (G in fig 6) associated with a gas sensitive layer comprising an inorganic metal oxide (scandium oxide; col. 5, lines 70-73; col. 2, lines 26-66) applied to the substrate (col. 6, line 66- col. 7, line 39). The gate electrode is physically separated from the substrate by the inorganic metal oxide layer 76 and 77. Further the gate electrode is physically separated from the source and drain regions by air gaps and the inorganic metal oxide layer 76 and 77. The gate electrode is parallel to the source and drain regions in that the gate electrode is between the source and the drain. The semiconductor further comprises an electrical heater (45 and 46; col. 3, lines 26-29). The semiconductor further comprises a plurality of different gas sensitive layers (col.6, lines 18-23). Tsutsumi is structurally capable, seeing that it has all of the limitations of claim 1, of detecting alcohol in a gaseous state. The instant specification on page 5 specifically mentions scandium oxide as a metal oxide that displays alcohol sensitive properties.

Claims **1, 2** are rejected under 35 U.S.C. 102(b) as being anticipated by DE 4028062.

DE '062 discloses a gas sensor for measuring concentration of organic vapor in aromatic mixtures with polysiloxane absorbent contiguous substance forming ions or disposed over gate with wide sensitivity range for alcohols etc. (abstract). The sensor comprises a semiconductor substrate (2) with source (3) and drain (4) and an insulating film (5) on the substrate covered with a metal film with breaks (6) and gate (7). The gate electrode is physically separated from the substrate by the insulation film 5.

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Further the gate electrode is physically separated from the source and drain regions by insulation film 5. The gate electrode is parallel to the source and drain regions. A change in the threshold potential is used as sensor signal. Outside of the gate (7) is covered with a layer (8) of an adsorbent (I) for the target molecules of vapor of organic molecules contiguous substrate (II) producing ions or dipoles (abstract). DE '062 is structurally capable, seeing that it has all of the limitations of claim 1, of detecting alcohol in a gaseous state.

Claims **1, 6, 7, 10** are rejected under 35 U.S.C. 102(b) as being anticipated Inami et al. (USPN 4,638,346).

Inami discloses a field effect transistor type moisture sensor that comprises a field effect transistor device incorporated with a moisture sensitive means (abstract; col.col. 1, line 17- col. 2, line 9), the electrostatic capacity or the electrical conductivity of which varies with the absorption and the desorption of water vapor or moisture, wherein the moisture sensitive means is disposed on a gate insulating film of the field effect transistor device to form an electrode structure (abstract). The sensor comprises a source (2) and a drain (3) on silicon substrate (1). The surface of the silicon substrate is covered with a silicon dioxide film having through holes for the source (2) and the drain (3). Double layers of the silicon dioxide film (5) and a silicon nitride film on the silicon substrate form between the source (2) and drain (3) a gate insulating film (100) (col. 4, lines 18-41). The gate electrode is physically separated from the substrate by layers 5, 6 and 7. Further the gate electrode is physically separated from the source and drain regions by layers 5, 6 and 7. The gate electrode is parallel to the source and drain

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regions. The moisture sensor containing a metal oxide film has an excellent heat resistance and responds rapidly and has a high temperature resistance coefficient, and a gas insensitive transistor for compensating for temperature effects (col. 2, lines 35-41; col. 3, lines 45-49; col. 4, lines 61-68). Inami is structurally capable, seeing that it has all of the limitations of claim 1, of detecting alcohol in a gaseous state.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims **7, 8, 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 4028062 in view of Inami et al. (USPN 4,638,346).

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DE '062 discloses a gas sensor for measuring concentration of organic vapor in aromatic mixtures with polysiloxane absorbent contiguous substance forming ions or disposed over gate with wide sensitivity range for alcohols.

DE '062 does not employ a moisture sensitive layer.

Inami discloses a field effect transistor type moisture sensor that comprises a field effect transistor device incorporated with a moisture sensitive means, the electrostatic capacity or the electrical conductivity of which varies with the absorption and the desorption of water vapor or moisture, wherein the moisture sensitive means is disposed on a gate insulating film of the field effect transistor device to form an electrode structure (col. 3, lines 31-56). It would have been obvious to one having an ordinary skill in the art to modify DE '062 to include the moisture sensitive layer of Inami to provide a more precise and balanced measurement because moisture interferes with alcohol detection (abstract DE '062) is known in the art.

### ***Allowable Subject Matter***

Claim 11,12 and 14-15 are allowed.

The prior art does not teach or fairly suggest a gas sensitive layer as claimed comprising a polycyclopentylsilsesquioxane.

Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Response to Arguments***

Applicant's arguments filed 8/20/08 have been fully considered but they are not persuasive. Applicant argues, "There is no alcohol detecting gas-sensitive layer in the semiconductor of Leu. Alcohol is not even mentioned in Len. A 35 U.S.C. § 102 rejection requires that a single prior art reference disclose each feature of the claimed invention. It is respectfully submitted that Leu is incapable of anticipating the subject matter of claim 1 since it fails to disclose an alcohol sensor that includes an alcohol detecting gas-sensitive layer." The Examiner states that the gas sensitive layer is structurally and functionally capable of performing as an alcohol detection layer. It is well known in the art that metal oxide layers such as those employed in Leu, i.e. tin oxide, vanadium oxide are used for alcohol detection layers.

Applicant argues, "There is no alcohol detecting gas-sensitive layer in the semiconductor of Tsutsumi. Alcohol is not even mentioned in Tsutsumi. Tsutsumi merely discloses gas in the context of fabricating the semiconductor device, and nothing about an alcohol detecting gas-sensitive layer during operation of the semiconductor." The instant specification on page 5 specifically mentions scandium oxide as a metal oxide that displays alcohol sensitive properties. The prior art has to show a structure that is structurally capable of performing the intended use of the instant claims and since Tsutsumi teaches the exact scandium oxide layer as claimed by the instant application the Examiner maintains that it is structurally and functionally capable of being an alcohol detection layer.



### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAM P. SIEFKE whose telephone number is (571)272-1262. The examiner can normally be reached on M-F 7:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on 571-272-1700. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Samuel P Siefke/  
Primary Examiner, Art Unit 1797